

FEDERAL TRANSIT ADMINISTRATION

TRANSIT BUS SAFETY PROGRAM

**Task 3 – Development of a Model Transit
Bus Safety Program**

Draft Report
July 16, 2001

Prepared for:

FEDERAL TRANSIT ADMINISTRATION
Office of Safety and Security
400 Seventh Street, S.W.
Washington, DC 20590

Prepared by:

BATTELLE
505 King Avenue
Columbus, OH 43201

In Collaboration with:

TRANSPORTATION RESOURCE ASSOCIATES, INC.
225 South 15th Street, Suite 510
Philadelphia, PA 19102

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Development of a Model Transit Bus Safety Program

Draft Report

1. Introduction

This draft report describes concepts and elements of a model transit bus safety program as a part of the Federal Transit Administration's (FTA) *Transit Bus Safety Program (Program)*. This document defines a model transit bus safety program inclusive of safety oversight functions to complement the implementation of a transit bus safety program.

1.1 Background

The Program was initiated by the FTA in response to a 1998 National Transportation Safety Board (NTSB) special investigation report entitled "*Transit Bus Safety Oversight*" (PB98-917006, NTSB/SIR-98/03). The document was the result of findings from investigations and a subsequent public hearing in March 1998 concerning high-profile transit bus accidents in the United States. The NTSB report observed that there is a lack of consistency among the states regarding oversight of transit bus safety and there is currently no overall Federal regulatory structure guiding the oversight of transit bus safety. Consequently, NTSB recommended that the U.S. DOT, the American Public Transit Association (APTA), the Community Transportation Association of America (CTAA) and the American Association of State Highway and Transportation Officials (AASHTO) "*develop...a model comprehensive safety program(s) and provide it to all transit agencies.*" The goal of the recommendations was to encourage the development of transit bus safety standards and practices that large bus agencies, as well as small transit bus operations, could practicably implement.

Transit bus providers pay an economic cost for both vehicle accidents and employee on-the-job accidents. These costs are represented by vehicle damage repair and/or replacement costs, additional vehicles for replacement service, facility damage and repair, passenger and employee claims, legal services to handle claims and lawsuits, employee lost time and/or replacement (hiring and training), and other costs. Insurance premiums to address these items and other contingencies are another direct cost to the transit provider. (Some transit providers are self-insured for a majority of their risk exposure and bear these costs directly.) Since insurance premiums change to reflect accident experience the transit provider ultimately pays the full cost

of the accidents through insurance premiums and other direct and indirect costs. Thus the prevention of accidents and the prevention of passenger and employee injuries and property damage through a proactive safety program will save money.

Transit bus providers, whether public agencies or private contractors to public agencies, use public funds to provide transportation services to members of the general public. Their vehicles operate on public thoroughfares, interacting with the general public and private vehicles that share these public facilities. Members of the general public who use transit bus services expect to be transported safely to their destination. Other drivers that share the road with transit vehicles have a right to expect that transit operations will not endanger them. As a result, the transit bus provider has an ethical obligation to provide safe and secure services to their customers and to not endanger other members of the public by their operations. Performing the activities that contribute to safe operation and safe interaction with the general public – through a proactive safety program – is simply good management and the right thing to do. This ethical obligation also extends to the transit employees in their workplace. Employees should be able to expect a safe and secure work environment.

1.2 Objectives

The overall objective of the FTA's Transit Bus Safety Program is to improve transit bus safety for passengers, employees, and others that share the roadways with the transit bus industry. These safety improvements will be implemented through

- Defining a model transit bus safety program that encompasses a comprehensive set of safety practices and activities
- Establishing an appropriate oversight function to facilitate consistent, industry-wide implementation of the model safety program.

FTA would provide continuing support for the transit bus safety program by establishing transit bus safety practice benchmarks and providing technical assistance to the transit bus industry for the implementation of these safety practices.

As one can infer from the NTSB report, there is little tolerance for life-threatening accidents in the public common-carriage industry. While one can argue that the transit bus industry is one of the safest forms of transportation, there is no doubt that public transit is subject to greater scrutiny in the eyes of the public. Public transit agencies that rely on public funds in the United States are expected to provide the safest possible form of service that is economically feasible.

1.3 FTA Transit Bus Safety Program

This research program is structured around four tasks that support the overall objective of improving transit bus safety. The initial step in this development, undertaken as Task 2 of the Program, examined the Federal, state, and local transit bus safety regulations and oversight requirements to establish the baseline of current regulations and oversight programs. Part I of the Task 2 report, "*Federal Regulatory Oversight and Industry Initiatives for Public Transit Safety*," identifies and reviews transit bus safety regulations promulgated by the FTA, FMCSA,

the National Highway Safety Administration (NHSTA), and discusses the roles of organizations such as the NTSB, APTA, and CTAA in transit bus safety. Part II of the report, “*State Statutes and Regulations*,” documents and reviews all state legislation on transit bus safety in the U.S. and its territories. Finally, Part III of the Task 2 report provides a review of unique local transit bus safety regulations and practices¹.

Task 3 is the Development of a Model Transit Bus Safety Program that establishes a set of minimum elements for a transit bus safety plan for the control of hazards associated with bus operations. Task 3 builds on current fleet safety practices and existing government regulations.

Task 4 is the Development of Public and Private Advocacy Partnerships for promoting transit bus safety. The focus of Task 4 is building relationships throughout the transit bus industry and government arenas to form bus safety advocacy partnerships.

Task 5 is the Development of Technical Assistance Projects/Best Practices for transit bus safety. Task 5 provides for workshops and seminars, bus safety briefings for industry groups, bus safety surveys through technical assistance visits, and/or describing best practices for specific areas of bus safety.

The Transit Bus Safety Program is being conducted in cooperation with the American Public Transportation Association (APTA), the Community Transportation Association of America (CTAA), and the American Association of State Highway and Transportation Officials (AASHTO). These organizations have had full access to program materials and have acted in a review and comment role from the program’s beginning. FTA has also presented the draft program elements for review and comment at national meetings during May – July 2001. In addition, other portions of the transit industry have been actively engaged in the process through workshops with FTA and their contractors.

It is critical to stress that the goal of the Program is NOT to create a bus analogue to the rail fixed-guideway state safety oversight program (49 CFR Part 659). Rather, the purpose of this initiative is to compare and contrast current approaches to bus safety regulation and oversight in the United States and its territories resulting in a national framework that provides transit bus safety practice guidance to large and small transit bus entities. While the categories of analysis for the study are drawn from the template of the rail oversight regulations, the Program fully acknowledges the fundamental differences between the rail and transit bus modes. Therefore, any eventual consideration of potential models for the guidance of transit bus safety will take into account the needs unique to transit bus operations.

1.4 Participants and Roles

There are a number of participants who have roles in transit bus safety and oversight. The following list provides a brief description of these participants and their roles.

¹ FTA Transit Bus Safety Program, Task 2 – Regulations and Oversight (Federal, State, Local & Industry), Draft Final Report, March 19, 2001.

- FTA – Federal Transit Administration – Provides operating and capital funding assistance to transit providers either directly or via state agencies through their formula and grant programs.

FTA Office of Safety and Security – Principal resource for transit related training, research, and technical assistance to transit providers for safety and security related issues.

- FMCSA – Federal Motor Carrier Safety Administration – Establishes safety standards and regulates the safety of motor carriers and privately owned interstate bus operations.
- NHTSA – National Highway Traffic Safety Administration – Establishes motor vehicle safety standards that must be adhered to in the manufacturing process to ensure the safety of the vehicle at initial sale.
- NTSB – National Transportation Safety Board – Independent Federal agency charged with authority to investigate transportation accidents in the United States, conduct special studies and research in transportation safety, and make recommendations to improve transportation safety based on the results of investigations and research.
- Public Transportation Agencies – Public transportation agencies are defined as those entities that provide bus and/or demand responsive transit services, and are publicly owned and financed. These agencies both operate and maintain transit bus service with their own employees or alternatively, contract with private entities to provide these services.
- Private Transportation Providers – Private transportation providers are defined as those entities that provide bus and/or demand responsive transit services, and are privately owned and managed. While these providers are private businesses, the operations are generally publicly funded, with some level of FTA capital and/or operating funds as additional funding sources. These private providers operate and maintain transit bus service with their own employees or alternatively, may contract with other private firms to furnish support services (vehicle and infrastructure maintenance, scheduling, administration, etc.).
- CTAA – Community Transportation Association of America – National, professional membership association of organizations and individuals committed to removing barriers to isolation and to improving mobility for all people. CTAA conducts research, provides technical assistance, offers educational programs and serves as an advocate in order to make coordinated community transportation available, affordable and accessible.
- APTA – American Public Transportation Association – Organization of members who serve the public interest by providing safe, efficient and economical transit services, and by improving those services to meet national energy, environmental, and financial concerns. APTA members carry over ninety percent of passengers using transit in the U.S. and Canada.
- AASHTO – American Association of State Highway and Traffic Officials – A nonprofit, nonpartisan association representing highway and transportation departments in the 50 states, the District of Columbia and Puerto Rico. AASHTO's primary goal is to foster the

development, operation and maintenance of an integrated national transportation system. The AASHTO membership is composed only of instrumentalities of government.

1.5 Organization of this Report

Section 2 provides definitions to aid in the understanding of the discussions and outlines the underlying concepts related to the rationale and organization of a comprehensive transit bus safety program. Section 3 defines the specific elements for transit bus safety programs and oversight functions, including the definition of a core safety program for all transit bus providers. Section 4 discusses and compares various models for implementation of transit bus safety oversight on a national level. Section 5 provides a proposed policy option for implementing transit bus safety and oversight programs that has been developed through a cooperative process including the FTA and the transit industry.

2. Types and Organization of Transit Bus Services

Transit bus service is defined in a broad sense for this report. As used in this report, transit bus service includes both fixed route and demand responsive service for the general public, using any road vehicle (e.g., motor bus (of any size), van, passenger car, or electric trolleybus) provided by either public agencies or private transportation providers that receive public funds.

There are an estimated 6,000 public transit systems in the United States and Canada offering fixed route and demand responsive (paratransit) services. Also, many public agencies also contract some of their services to private operators, further expanding the number of transit providers.² These public transportation agencies and private transportation providers are referred to collectively as transit bus providers.

This section of the report outlines the concepts and underlying structure for the definition of the FTA Model Transit Bus Safety Program. The discussions provide rationale and categories for both the types of transit bus services and safety program elements that should be included in a comprehensive transit bus safety program. These discussions define the structure of the presentations in Sections 3 and 4.

2.1 Definitions

Following are additional definitions that may be useful in understanding the remainder of this report.^{3,4}

- Demand Response – Shared ride transit service operated on roadways, provided on demand for individuals and groups. Vehicles are normally dispatched and used exclusively for this service. Vehicles may be passenger cars, vans, or buses usually with fewer than 25 seats.
- Electric Trolleybus - Rubber-tired passenger vehicles operating singly on a fixed route on city streets. Trolleybuses are driven electrically with the power being drawn from an overhead electric line via trolleys.
- Fixed Route – Service provided on a repetitive, fixed schedule basis along a specific route with vehicles stopping to pick up and discharge passengers at specific locations.
- Jitney - Passenger cars or vans operating on fixed routes (sometimes with minor deviations) as demand warrants without fixed schedules or fixed stops.
- Motor Bus - Rubber-tired passenger vehicles that operate either on a fixed route and fixed schedule or demand response on roadways. Buses are powered by diesel, gasoline, battery or alternative fuel engines contained within the vehicle.

² Public Transportation Fact Book, 52nd Edition, American Public Transportation Association, March 2001.

³ Ibid.

⁴ Implementation Guidelines for State Safety Oversight of Rail Fixed Guideway Systems, DOT-FTA-MA-90-7006-96-3, July 1996.

- Safety – Freedom from danger.
- Security – Freedom from intentional danger.
- System Safety – The application of operating, technical, and management techniques and principles to the safety aspects of a system throughout its life cycle to reduce hazards to the lowest practical level through the most effective use of available resources.
- System Safety Program – The combined tasks and activities of system safety management and system safety engineering that enhance operational effectiveness by satisfying the system safety requirements in a timely manner throughout all phases of a system life cycle.
- Van – Vehicles having a typical seating capacity of 5 to 15 passengers and classified as a van by vehicle manufacturers. A modified van is a standard van which has had structural changes, usually to increase size and/or height, and seats 9 to 18 passengers.

2.2 Safety and Security Program Elements

A comprehensive safety and security program contains many elements, or activities, that must be diligently performed to achieve the highest levels of safety. A key premise of the development of the model transit bus safety program is that one size does not fit all – the transit bus provider size and resources must be considered in defining program requirements. The following sections focus on organizing transit bus providers with respect to resources and anticipated safety program elements.

2.2.1 Importance of Transit Provider Size/Resources

Since transit bus providers vary greatly in services offered, size, and resources, each of these factors must be considered in defining an industry-wide model transit bus safety program.

Large transit providers typically offer a greater variety of services (such as bus rapid transit, fixed route, and demand responsive transit) than small transit providers that may offer only demand responsive service. Large transit providers operating in urban areas will typically have more people resources (e.g., safety professionals, engineers, trainers, and in-house legal counsel) and financial resources at their disposal than smaller transit providers operating in non-urban areas. Large transit providers also own or control more equipment, facilities, and other infrastructure than smaller transit providers that may own only a few vehicles and no significant facilities.

For the purposes of this discussion, transit bus providers are organized both by their service area environment and by their fleet and service types. This organization is used as rough correlation to the resources available to a transit bus provider and thus the expectations for participation in a comprehensive transit bus safety program.

The service area size designations are defined as follows.

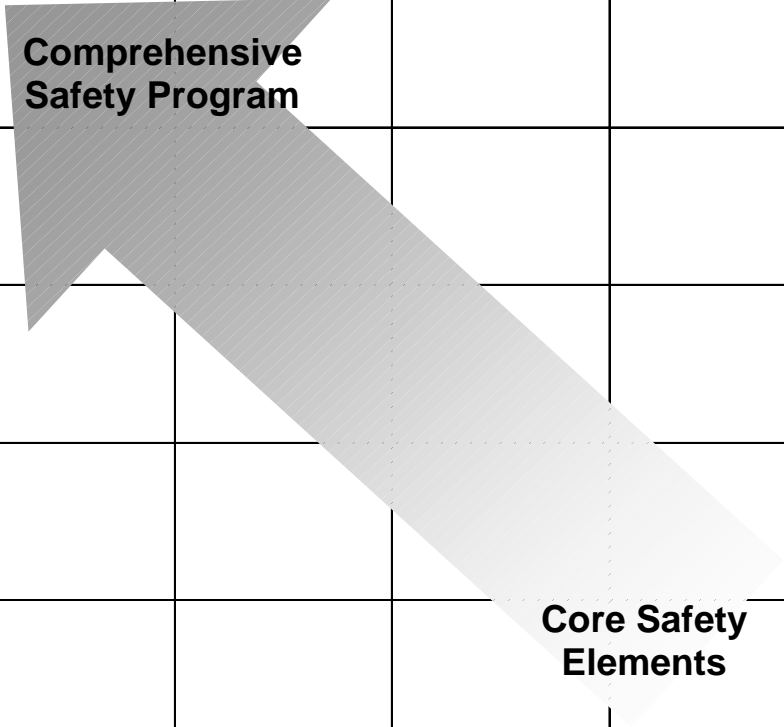
- **Urban** – Urban areas are those areas with over 50,000 in population. This category is subdivided into Small Urbanized areas with 50,000 to 200,000 in population, Urban areas with 200,000 to 1,000,000 in population, and Urban areas with over 1,000,000 in population.
- **Non-urban** – Non-urban areas are those areas with fewer than 50,000 in population.

The fleet and services categories are defined as follows.

- **Bus Rapid Transit & Electric Trolley Bus (BRT/ETB)** – These types of services are characterized by essentially a fixed guideway that is dictated by the infrastructure that supports the service. BRT service may have dedicated busways or operate in exclusive highway lanes where the transit provider is responsible for maintaining the roadway over which the BRT operates. ETB requires an electric overhead contact system along the full route that is the responsibility of the transit provider. BRT/ETB services are almost exclusively associated with urban transit bus providers.
- **Fixed Route** – Fixed route transit bus services are generally characterized by operations over a specific route. Generally the transit bus service is performed on a specific schedule of operations, picking up and dropping off passengers at identified stops along the route. Also includes route deviation service where revenue vehicles deviate from fixed routes on a discretionary basis. Service may be provided by regular motor buses, vans, or passenger cars. The fixed route category is further subdivided by fleet size as follows; Small (1 to 100 vehicles), Medium (101 to 500 vehicles) and Large (over 500 vehicles).
- **Demand Responsive & Paratransit (DR/PT)** – These services are essentially shared ride transit services provided on demand, operating on roadways. Service is dispatched when needed, generally provided door-to-door or curb-to-curb, may be provided by passenger cars, vans, or small buses, and have no regular route or schedule. These services may be provided directly by the local transit agency, by a private contractor to the transit agency, or other not-for-profit organizations.

Figure 2-1 illustrates this organization of transit bus providers as a matrix of type of service and service area. As the transit bus provider's services, resources, and infrastructure grow, their safety program should also grow from the core safety elements into a comprehensive safety approach. The comprehensive requirements for a transit bus safety program consist of two parts; (1) the core requirements or core safety elements and (2) enhanced requirements or safety elements. These two sets of requirements are discussed in the following paragraphs.

Figure 2-1. Organization of Transit Bus Providers for Application of Safety Program Elements.

Service Type and Fleet Factors		Service Area Factors			
		Urban			Non- Urban
		UZA population > 1,000,000	UZA population of 200,000 to 1,000,000	UZA population of 50,000 to 200,000	Rural and Population < 50,000
Bus Rapid Transit or Bus Fixed Guideway	Busways, Motor Buses, Electric Trolley Buses				
Fixed Route (FR)	Large (More than 500 vehicles)*				
	Medium (101 to 500 vehicles)*				
	Small (1 to 100 vehicles)*				
Demand Response or Paratransit (DR/PT)	Smaller fleets - Vans, passenger vehicles, or small buses				

UZA = Urbanized Area

*35-, 40-, and 60-foot vehicles and fleet size.

2.2.2 Core Safety Program Elements

The concept of a core safety program element is simply a safety activity that **every** transit bus provider should be doing as part of a minimum safety program. Core safety program elements should receive adequate resources to support these core activities. While all activities are subject to resource limitations, these core safety program elements should be a high priority in resource allocation.

2.2.3 Enhanced Safety Program Elements

The concept of a “enhanced” safety program element is used to describe safety program elements that go beyond the scope of the core safety program elements. Enhanced program elements are those safety program elements and activities that will enhance safety program effectiveness for all transit bus providers. Large transit bus providers, with adequate resources, typically have a need for all or most of these elements in their safety programs. Small transit bus providers should incorporate these elements as their size and/or resources grow or as the need is indicated by operational safety experience. The transit provider’s safety program should grow with the transit provider’s services, resources, and infrastructure to continuously and proactively manage safety throughout their operations. This approach is based on a continuous improvement strategy for transit bus safety.

2.3 Safety Oversight Elements

Currently, at the Federal level, there are no regulations requiring the implementation of a transit bus safety oversight program and requirements at the state level range from strict mandates to almost complete silence on bus safety programs. Also, no local (below state level) regulations or requirements were identified that applied specifically to transit bus safety. However, there are regulations and oversight requirements for other transportation modes (e.g., interstate buses, private motor carriers, rail transit) that suggest possible implementation options for transit bus safety oversight.

Several safety oversight program implementation options are presented in Section 4. The implementation models focus primarily on options for implementing the safety oversight elements as part of a total strategy that includes both safety program and oversight elements. These implementation models are based on currently existing rules/regulations and practices that were identified in Task 2 of this program, or other models that were suggested by the research conducted in this program.

3.0 Safety and Security Program Elements

The focus of a safety and security program is prevention – prevention of accidents and incidents that have the potential for harm to people or damage to equipment or infrastructure. The motivations for establishing a proactive safety and security program concern both economics and ethics.

This section defines the elements of a comprehensive transit bus safety and oversight program. The transit bus safety program elements are based largely on existing sources (reference list at the end of this report). The discussions below present a summary of the elements deemed necessary for the implementation of a transit bus safety program. These elements are broken down into two categories: Core Safety Program Elements and Enhanced Safety Program Elements. Collectively, these elements define a comprehensive transit bus safety program. A set of Core Safety Program Elements is defined within the comprehensive safety program. All transit providers should implement the core safety program elements (described in Section 3.2). Smaller transit providers, with less resources and staff, should focus on implementing the core safety program elements. However, as the size and resources of the transit provider increases or as operational experience indicates additional needs, the transit provider should implement selected enhanced safety program elements to further improve their safety program.

3.1 Transit Provider System Safety Program Plan

All transit bus providers should prepare a system safety program plan (SSPP) that defines and describes their safety program. The SSPP should define the provider's safety policy and describe all elements included in the provider's safety program.

The transit provider's safety policy statement should define as clearly as possible the authority for establishment and implementation of the Transit Bus Safety Program Plan and how that authority has been delegated through the organization⁵. The SSPP should describe the policies, procedures and requirements to be followed by management, maintenance, and operating personnel in order to provide a safe environment for transit personnel. The policy statement and program plan should refer to transit management approval either through signature of the Executive Director (or equivalent) on the title page or other equivalent means.

In addition, the policy statement should address the intent or purpose of the transit bus safety program and define why it is being written. Some suggested topics⁶ for inclusion in the purpose portion of the policy statement include:

- Achieve the highest level of safety for all activities of the transit property
- Provide a medium through which the transit property can display its commitment to and plans for achieving safety

⁵ American Public Transportation Association's *Manual for the Development of Bus Transit System Safety Program Plans* (Rev. 5/99).

⁶ Suggested topics are drawn from the APTA Manual. All topics may not be appropriate for all transit providers.

- Provide a framework for the implementation of safety policies and the achievement of related goals and objectives
- Satisfy federal and state requirements
- Meet accepted industry standards and audit provisions
- Satisfy self-insurance provisions
- Achieve safety goals and objectives in a cost-effective manner.

The transit provider SSPP should have clearly stated goals and objectives for the transit bus safety program and describe the specific program elements of the transit provider's safety program. These descriptions should address the scope of the activity, the individual(s) responsible for performing the activity within the transit provider organizational structure, schedule for implementation and performance requirements, and any associated resources necessary for the safety program element. The number of safety program elements, as posited in Section 2, depends on the services and resources available to the transit bus provider.

The transit provider should also make provisions for regular reviews and updates to the SSPP, and maintain the SSPP as a controlled document. Reviews and updates to the SSPP may be made on an annual or other scheduled basis, or as needed as the transit provider's services and resources change.

3.2 Core Safety Program Elements

As discussed in previous sections, all transit providers, regardless of size, should implement the core safety program elements as part of their transit bus safety program. These core safety program elements include:

- Driver Selection
- Driver Training
- Vehicle Maintenance
- Drug and Alcohol Abuse Programs
- Safety Data Acquisition and Analysis.

Driver Selection: Driver selection is critical to safe transit operations. The driver of a transit bus vehicle is directly responsible for the safety of their passengers and other drivers that share the road with the transit bus vehicle. The transit provider should have a clear definition of driver qualifications and requirements (whether the driver is paid or volunteer). The driver selection criteria must address specific, safety-related items.

- Licensing – the driver must be properly licensed and the license must be appropriate for the type of vehicle the driver is assigned. Licensing may also need to consider local jurisdiction requirements.
- Driving record – the driver should have an acceptable past driving record over a reasonable period of time. The driving record should demonstrate an ability to follow traffic rules and regulations and thus avoid accidents.

- Physical requirements – the driver must be physically able to perform the functions associated with the driving assignment. These factors may include good eyesight with true color perception, good hearing, physical strength and dexterity to assist disabled passengers (especially in demand responsive/paratransit assignments), or other factors that may be unique to the driving assignment.

Other safety-related factors or requirements may be appropriate depending on local jurisdiction requirements or specific characteristics of the driving assignment.

Driver Training: Once qualified candidates are identified and hired, initial and on-going training is critical to insure proper operations and adherence to the transit providers' rules and regulations. Proper qualification of operating and maintenance personnel is a vital part of a safe transit environment. Driver training should address specific safety-related issues appropriate to the type of vehicle and driving assignment.

- Traffic regulations – training should address state and local traffic rules and regulations, including traffic signs and signals (including proper use of hand signals).
- Defensive driving and accident prevention – training should stress defensive driving principles, collision prevention, and concepts of preventable accidents as a measure of defensive driving success.
- Type of vehicle in service – training should focus on the type of vehicle that will be used in service; significant differences can exist among different bus models and among different manufacturers, and equipment may have characteristics that are unique to the service environment.
- Basic driving maneuvers, including backing and stopping – training should include all core driving maneuvers for the type of vehicle in service, including the difficulties in backing maneuvers that can lead to accidents, stopping distance requirements, and equipment-specific functions such as door opening and closing procedures for passenger boarding and alighting.

The transit provider should maintain complete and accurate records of all driver training and certifications, as well as the training materials and grading mechanism. Drivers should be required to demonstrate skill and performance competency in the type of vehicle to which they are assigned as a part of training requirements. Training transit operations personnel is not a one-time activity. On-going/recurring training is necessary to reinforce the policies and procedures as well as providing a mechanism to brief drivers on new policies, procedures, and/or regulations.

Vehicle Maintenance: Proper maintenance of vehicles and equipment is critical to the continued safe operation of the transit system. Unsafe vehicles present unnecessary hazards to the driver, passengers, and other vehicles on the road. Basic vehicle maintenance practices must regularly address safety-related vehicle equipment to ensure that no unsafe vehicles are dispatched for service. Safety-related vehicle equipment includes:

- Service brakes and parking brake
- Tires, wheels, and rims
- Steering mechanism
- Vehicle suspension
- Mirrors and other rear vision devices (e.g., video monitors)
- Lighting and reflectors or reflective markings
- Wheel chair lifts

Most safety-related equipment should be inspected during a pre-trip inspection to ensure that the vehicle is fit for service. Most manufacturers of vehicles and specialized equipment provide suggested operating standards and routine maintenance activities for safety-related equipment.

The transit provider should establish a formal plan to address the maintenance requirements of their vehicles and equipment. At a minimum, the vehicle maintenance program element should address the following categories:

- Daily servicing needs – This relates to fueling, checking and maintaining proper fluid levels (oil, water, etc.), vehicle cleanliness, pre- and post-trip inspections and maintenance of operational records and procedures.
- Periodic Inspection – These activities are scheduled to provide maintenance personnel an opportunity to detect and repair damage or wear conditions before major repairs are necessary. Inspection items should include suspension elements, leaks, belts, electrical connections, tire wear, and any noticeable problems.
- Interval Related Maintenance – This focus is to identify wear, alignment, or deterioration problems of parts or fluids. Replacement intervals of these items are determined through transit agency experience and manufacturer recommendations.
- Failure Maintenance – Regardless of the preventative maintenance activities, in-service failures will occur. When a failure is encountered that makes the vehicle unsafe or unable to continue operation, the vehicle is usually removed from service and returned to the garage for repair.

Drug and Alcohol Abuse Programs: Since many transit providers receive FTA operating and capital funds, the FTA Drug Testing Requirements form the basis for drug abuse programs. An alcohol abuse program is also required. The bottom line is protection of the riding public and transit employees, and all efforts should be geared toward this end. The transit provider's safety program should outline the specific policies, procedures and responsibilities, or reference the appropriate master document containing that information.

Safety Data Acquisition/Analysis: Understanding safety data is an important step toward allocating important (and often scarce) resources to implement safety program elements. Safety data relative to transit provider operation can be used to determine safety trends in system

operation. These data include information gathered from within the system on safety-related events such as passenger injuries or claims, employee injuries, accidents, and incidents. The data are useful in a formal hazard identification and resolution process to help identify hazards before they cause accidents. The data may also help improve system performance, not only in respect to safety, but also in overall delivery of service to the riding public.

3.3 Enhanced Safety Program Elements

The enhanced safety program elements improve the transit provider's safety program beyond the core safety program elements. Transit providers in urban areas typically include these elements and other transit providers should expand their safety program as their services, resources, and infrastructures grow. The remaining enhanced safety program elements are described here as part of the continuous improvement approach to transit bus safety programs.

Exhibit 3-1 lists the comprehensive safety program element⁷ activities organized into the following groups:

- Safety process-centric elements – these elements represent processes and procedures that provide important foundation for building and expanding a safety program. These elements focus on understanding the safety issues within the transit bus operations (accidents, incidents, and hazards) so that safety resources can be properly directed.
- Human-centric elements – these elements focus on processes or procedures that are directed more toward driver and employee safety issues.
- Infrastructure and equipment-centric elements – these elements address safety issues related to the transit system vehicles and general infrastructure.

<p>Safety Process-Centric Elements</p> <ul style="list-style-type: none"> • Safety Data Acquisition/Analysis* • Accident/Incident Reporting & Investigation • Hazard Identification/Resolution Process • Emergency Response Planning, Coordination and Training • Internal Safety Audit Process <p>Human-Centric Elements</p> <ul style="list-style-type: none"> • Driver Selection* • Driver Training* • Drug & Alcohol Programs* 	<p>Infrastructure & Equipment-Centric Elements</p> <ul style="list-style-type: none"> • Vehicle Maintenance* • Facilities Inspections • Maintenance Audits/Inspections • Hazardous Materials Program • Alternative Fuels and Safety • System Modification Review/Approval Process • Interdepartmental/Interagency Coordination • Configuration Management • Procurement • Security • Operating Environment and Passenger Facility Management
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⁷ Elements and descriptions derived principally from the APTA Bus Safety Management Program (Rev. 5/99).

<ul style="list-style-type: none"> ▪ Employee Safety Program • Fitness for Duty (additional requirements beyond the drug and alcohol FFD requirements) • Rules/Procedures Review • Contractor Safety Coordination 	<ul style="list-style-type: none"> • Dedicated Busway or Roadway Inspection and Maintenance <p>* Core safety element.</p>
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Exhibit 3-1. Comprehensive Safety Program Elements.

The following paragraphs briefly describe each of these safety program elements.

Safety Process-Centric Elements

Accident/Incident Reporting & Investigation: Accident and incident investigation focus on determining the causal factors that resulted in the accident/incident. Identifying the causes of accidents is the key element in preventing future accidents from the same or similar causes. The feedback and follow-up from these investigations should automatically be included in the hazard resolution process to prevent a recurrence of the problem. The scope of the investigative process may be tailored to the transit provider. However, all transit providers should have some degree of formality in their investigative and follow up procedures to ensure consistency in the investigation process.

Hazard Identification/Resolution Process: A formal Hazard Identification/Resolution Process is a proactive part of the system safety process that identifies, and then mitigates hazards prior to the occurrence of an accident. The level of formality and scope of the hazard identification and resolution process can be tailored to the individual needs of the transit provider. All levels of the organization can participate in the hazard identification process, from how hazards are identified and analyzed for potential impact on the operating system to how hazards are resolved in a manner acceptable to general management.

Emergency Response Planning, Coordination and Training: Timely and proper emergency response when an accident occurs is important to mitigating the impact of an accident. Emergency response includes identifying responsibilities and response needs, meetings and coordination with outside agencies, and emergency drills and tabletop exercises as a part of a training program. Preparation and distribution of Emergency Response Procedures specific to the transit provider's operations should be developed and reviewed on a periodic basis. Fixed facilities should have their own facility emergency response plan to protect transit provider employees and assets.

Internal Safety Audit Process: The safety program must be managed and monitored to maintain program direction and efficiency. The Internal Safety Audit Process determines if all organizational elements, equipment, procedures and functions are performing as intended from a system safety perspective. A thorough internal safety audit process will provide top management with documentation that all key elements of the organization with identified system safety responsibilities are performing the specified safety functions. The internal safety audit program

should verify safety programs have been developed and are in place, identify any safety program deficiencies, identify potential hazards and weaknesses in the safety programs, verify corrective actions, and recommend improvements to the safety program. The internal safety audit process can and should be conducted periodically to maintain safety program performance.

Human-Centric Elements

Employee Safety Program: The employee work force is the most valuable resource of the transit provider. Minimum employee safety program requirements are those elements required by either local or federal law, such as Employee Right To Know requirements for hazardous materials and locally required Occupational Safety & Health requirements.

Fitness for Duty: Transit operator fitness for duty goes beyond the legislated drug and alcohol requirements. Fitness for duty programs should encompass fatigue management, duty hours and rest periods, over-the-counter medications, and stress management to help ensure that the transit operator can safely perform their job functions.

Rules/Procedures Review: Rules and procedures, especially safety rules and procedures, provide the basis for the delivery of safe transit service, consistency in the delivery, and performance expectancy of the transit provider. These safety rules and procedures protect transit passengers and assets during operations. Safety rules and procedures in the workplace provide protection for employees. An important safety program element is to ensure that these rules and procedures are carefully developed, maintained and followed. The safety program should include a methodology for ensuring uniform, coordinated development and implementation of operating rules and procedures, and for reviewing and updating the rules and procedures as needed. The scope should include the following, as appropriate for the transit provider.

- Operating rules and procedures
- Maintenance safety rules
- Maintenance inspections
- Repairs to equipment.

Contractor Safety Coordination: Contract service providers and contractor staff (e.g., construction and/or maintenance) must be included in a comprehensive safety program. The transit provider should specify safety requirements and procedures in all contractor assignments for the safety of passengers, transit employees, contractor employees, and protection of transit property. Generally the contractor safety program will include training with respect to the transit provider's safety rules and require compliance with these rules in addition to specific contractor safety practices.

Infrastructure and Equipment-Centric Elements

Facilities Inspections: Facilities inspections are important for providing a safe work environment for employees and contractor staff. Continued maintenance of all transit facilities is an important part of the safety program. The transit provider should identify and locate all facilities/equipment with safety-related characteristics, such as fire protection equipment,

emergency communications equipment, employee safety devices, and hazardous materials handling and storage. A specific list for each facility will be required. A regular cycle of inspections can then be used to monitor the condition of the facility and identify any corrective actions that may be necessary.

Maintenance Audits/Inspections: This activity addresses the responsibilities and requirements of all groups performing maintenance, including preventative maintenance, scheduled inspections and failure maintenance, following appropriate maintenance practices, and using proper tools and test equipment.

Hazardous Materials Program: The transit provider should determine the applicable jurisdiction of either state or federal Environmental Protection and Occupational Safety and Health agencies and follow the appropriate regulation and rules.

Alternative Fuels and Safety: The use of alternative fuels may invoke specific life safety and operational safety requirements due to the special nature of the fuel, equipment, and facilities. Transit providers that use alternative fuels should contact federal, state, and local regulatory agencies, including local jurisdictions and the local Fire Marshall, to stay aware of the many different safety rules and regulations. Alternative fuels programs may also invoke specific employee training or emergency response requirements. These requirements should be documented, maintained, and monitored as part of the transit provider's overall safety program.

System Modification Review/Approval Process: As the transit provider's services and resources grow through purchasing new equipment, system expansion and modification, and system rehabilitation, possible safety hazards must be identified and resolved. The transit provider safety program should ensure that any hazards associated with system expansions or modifications are incorporated into the hazard resolution process and tracked until completion of the procurement or modification.

Interdepartmental/Interagency Coordination: The transit provider safety program should establish a clear and consistent communications process relative to safety issues throughout the transit provider organization. Sharing of safety information allows the safety program to identify and resolve hazardous situations in a timely manner. Also, good communications and coordination with outside agencies (e.g., fire, police, medical) are also important to the safety program. The transit provider should identify the outside agencies where regular coordination is required, such as emergency response and law enforcement agencies.

Configuration Management: Configuration Management is a process that ensures, as much as possible, that all property, equipment, systems design elements, etc., are documented as to configuration, accurately and completely. Any changes to an individual subsystem, or a fleet or inventory-wide change must be recorded and addressed in training courses, maintenance manuals and procedures in a timely and effective manner. The process must include, as a minimum, procedures for authority to make configuration changes, the process for incorporating these changes into all appropriate documentation and the process for ensuring that all necessary units, including the safety program, are formally made aware of such changes, so that hazards related to changes in configuration can be identified and resolved.

Procurement: The transit provider safety program should include procedures that include the routine procurement of supplies, materials and equipment. These procedures must be in place and enforced to preclude the introduction of unauthorized hazardous materials and supplies, as well as defective or deficient equipment and replacement parts.

Security: The transit provider should provide a proactive, prevention-oriented approach to security. Current thinking regarding bus transit security emphasizes the importance of identifying potential threats and areas of vulnerability, developing approaches that will minimize those threats and vulnerabilities and demonstrating a clear and proactive approach to security. Coordination with local law enforcement jurisdictions may facilitate response when security breaches occur.

Operating Environment and Passenger Facility Management: The transit provider safety program should include, to the extent possible, the current and future operating environment that their buses and customers will encounter. This environment should include items such as bus stop location, both for on-street and dedicated-right-of-way stops, including the extent to which passengers must interface with traffic and passenger security while at bus stops. Maintenance of any bus stops or station infrastructure related to passenger safety and security should also be considered as a part of the safety program, subject to periodic audits and corrective actions.

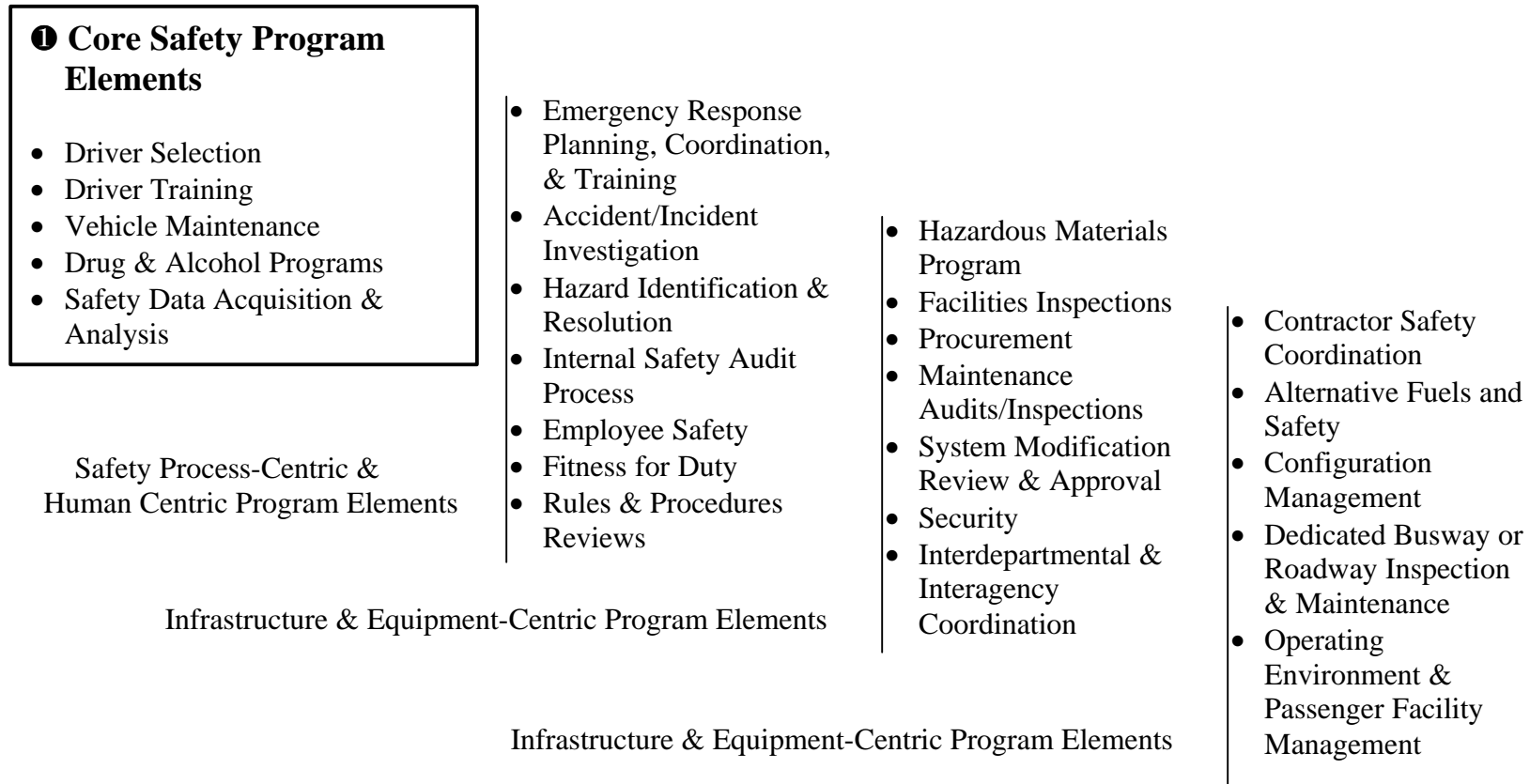
Dedicated Busway or Roadway Inspection and Maintenance: Transit providers that include bus rapid transit (BRT) or electric trolley buses (ETB) in their offered services should address the unique infrastructure requirements of these services in the safety program. BRT/ETB services may have dedicated busways or roadway lanes or other infrastructure (such as the overhead contact system) that must be inspected and maintained to ensure safe operations.

3.4 Summary

The philosophy of continuous improvement for the safety program places the burden on the transit provider to identify and implement the safety program elements that are best suited for the transit provider's operations. All transit providers should implement the core safety program elements as the minimum acceptable approach to transit bus safety. The remaining elements of the comprehensive safety program then can be incorporated into safety efforts as resources are available or and needs are identified.

Exhibit 3-2 illustrates a conceptual approach to how the safety program elements may be proactively incorporated into the safety program. The initial foundation is the set of core safety program elements. The safety process-centric and human-centric safety program elements form the basis of the next level of safety program activities. The infrastructure and equipment-centric elements should be added as needed to provide protection for equipment, facilities, and other assets. Ultimately, the individual transit provider must establish priorities for incorporating needed safety program elements and activities based upon the needs and activities of the organization.

Exhibit 3-2. Layering of the Comprehensive Safety Program Elements.



4. Safety Oversight Implementation Models

This section describes alternative models for implementing a transit bus safety oversight function as a part of the comprehensive transit bus safety program. The transit provider has the principal responsibility for implementing a transit bus safety program that satisfies the needs of their operations. Strategies for tailoring the safety program to the transit provider's resources and the activity areas related to the safety program are described in Section 3. This section focuses on establishment of an oversight function that monitors the implementation of those safety programs and provides technical assistance to ensure those safety programs function effectively. While the term implementation model is used primarily to describe an oversight function concept, each of these models relies on the implementation of appropriate safety programs by the transit provider at each property.

4.1 Background and Basics

Task 2 of the Federal Transit Administration's (FTA) Transit Bus Safety Program focused on identifying Federal, state, local and institutional regulations and oversight requirements that currently exist regarding transit bus safety and transit bus safety oversight.

At the Federal level, there are currently no regulations requiring the implementation of a Transit Bus Safety Program. Federal Motor Carrier Safety Administration (FMCSA) regulations focus on preventing commercial vehicle-related fatalities and injuries and explicitly exempt transit bus carriers from most of these requirements. The National Highway Traffic Safety Administration (NHTSA) issues Federal Motor Vehicle Safety standards (FMVSS) for minimum safety performance requirements for the original manufacture of motor vehicles or items of motor vehicle equipment, but no regulatory focus after the sale of the vehicle.

At the State level, a few states have very comprehensive transit safety frameworks codified into state law. Florida requires SSPPs of privately-owned or operated bus transit systems that are "financed wholly or partly by state funds and all privately owned or operated bus transit systems under contract with [any governmental transit operator or privately owned or operated bus system receiving state funds]." Ohio's Department of Transportation provides their transit grantees with a Model Vehicle Safety Program. North Carolina, while not requiring a formal program, provides a model safety plan for local systems to use. The preponderance of the states have limited or no legislation regulating transit bus safety.

Research as part of Task 2 uncovered no unique local bus safety requirements (established below the state regulation level). However, insurance carriers provide fleet safety services to their commercial accounts and several geographic areas include insurance pools to provide economies of scale in the purchase of insurance coverage for transit operators. Some of these insurance pools also provide technical assistance as a risk management tool to their members.

While no specific regulatory framework for transit bus safety exists, regulations for other transportation modes and current practices do suggest models for implementing a transit bus safety oversight program. These possible models are explored in the following sections.

4.2 Oversight Program Elements

Generally speaking, an oversight function is a supervisory activity or supervision of work performed by others. The focus of the oversight function is the prevention of errors of omission or otherwise unintentional non-compliance with accepted rules and operating procedures. In a more specific sense, the oversight function provides an extra level of confidence that proper practices are being carried out by others.

Oversight of public agency activities (such as transit bus providers) usually involves a selected set of powers or authorities that reside in the oversight agency. These powers or authorities generally include:

- Policy-, standard-, and/or rule-setting authority – the oversight agency establishes general policies, standards, and/or rules with which a transit provider must comply.
- Compliance Monitoring (investigative/audit authority) – the oversight agency has authority to investigate or otherwise examine a transit provider's compliance with or violation of the oversight agency's policies, standards, and/or rules.
- Corrective actions – the oversight agency generally can require the transit provider to implement corrective actions necessary to comply with policies, standards, and/or rules.
- Review & approval – The oversight agency may have review and approval authority over certain transit provider activities.
- Technical assistance – the oversight agency may offer technical assistance such as training courses or other resources that are intended to assist the transit provider in understanding and complying with policies, standards, and/or rules.
- Enforcement – The oversight agency generally has enforcement powers, to some degree, over policies, standards, and/or rules.

An important element of this oversight relationship is the effective management of potential conflicts of interest. Organizational conflict of interest may exist when the oversight agency has a past, present, or currently planned relationship with the agency that, either directly or indirectly, relates to the work to be performed and may diminish its capacity to give impartial, technically sound, objective assistance and advice. Conflicts of interest prevent the independent rendering of oversight functions and have the potential to compromise the functions that the oversight agency is charged with protecting.

4.3 Possible Implementation Models

This section defines/describes the implementation model options for transit bus safety oversight functions derived from the project research. Each model description includes a general description of how the oversight model functions (in terms of the safety program and oversight elements), the anticipated participants in the model, and the roles of those participants.

Based on the program research, four models representing existing regulatory and industry-supported frameworks for safety oversight of Transit Bus Safety Programs are discussed.

Implementation Model 1 – Federal requirements with state enforcement

This implementation model is similar in concept to the current FMCSA Motor Carrier Safety Assistance Program (MCSAP). The Transit Bus Safety Program would be mandated at the Federal level with state adoption of the Federal requirements and enforcement of the rules. This implementation model would have the characteristics listed in Exhibit 4-1.

The FTA would bear the responsibility of defining transit bus safety standards and the performance characteristics to be achieved. These transit bus safety standards would need to be enacted into Federal law. FTA would be required to establish a program similar to FMCSA MCSAP to administer the program (An alternative is to expand the FMCSA program to include transit buses and the FTA safety standards, placing transit buses under the jurisdiction of FMCSA). FTA would need to establish a funding source as an incentive to the states to participate in the program. Enforcement and compliance monitoring would be carried out at the state and, possibly, at the local level.

EXHIBIT 4-1	
IMPLEMENTATION MODEL 1 – FEDERAL REQUIREMENTS WITH STATE ENFORCEMENT	
Transit provider safety program requirements	FTA/FMCSA define safety program and oversight (enforcement) requirements in Federal safety regulations. FTA/FMCSA proportionally funds state oversight (enforcement) if the state adopts the Federal rules.
Oversight function requirements	States must adopt Federal rules in order to participate in the program and receive oversight (enforcement) funds.
Enforcement	State entity (state police agency or other) enforces the state laws and can levy penalties for noncompliance.
Compliance monitoring	Both state and Federal entities have investigative and/or audit authority.
Technical assistance	Provided by both Federal and state entities.
Advantages	
<ul style="list-style-type: none">▪ Consistent set of requirements for all states▪ State control of activities with Federal funding assistance (if state participates in program)▪ Current, working model exists (FMCSA MCSAP for motor carrier industry)▪ Formal rulemaking process allowing wide review and comment before implementation	
Disadvantages	
<ul style="list-style-type: none">▪ Requires Federal legislation to implement▪ May be difficult to tailor safety program requirements to transit provider in Federal law▪ Oversight must be extended into facilities and other transit management practices in addition to motor vehicle operations▪ FTA funding source required to support state oversight (enforcement)	

Implementation Model 2 – Federal rule, state requirements & enforcement

A second implementation model is an approach similar to the existing Rail State Safety Oversight Rule (49 CFR Part 659) where FTA designates the states to establish and implement the safety program requirements, within FTA defined minimum performance requirements. This implementation model would have the characteristics listed in Exhibit 4-2.

In this model the FTA would establish minimum requirements for transit bus safety and then require the individual states to establish an oversight function, including setting state standards for transit bus safety. This approach requires new legislation or an amendment to the current rail state safety oversight rule to expand its coverage to include transit buses. The current approach to rail safety oversight provides no funding to the states to support the program. However, given the extent of transit bus providers in the states, funding assistance would likely be necessary to assure broad acceptance and implementation. The designated state oversight agency would bear the responsibility for enforcement and compliance monitoring.

EXHIBIT 4-2 IMPLEMENTATION MODEL 2 – FEDERAL RULE, STATE REQUIREMENTS & ENFORCEMENT	
Transit provider safety program requirements	State entity establishes safety program requirements based on Federal rule (FTA minimum requirements).
Oversight function requirements	Federal rule establishes minimum oversight requirements; state entity establishes authority and procedures for oversight functions.
Enforcement	Federal enforcement for state noncompliance (withholding of funds), state enforcement (TBD) for transit provider noncompliance.
Compliance monitoring	FTA audits state compliance, state entity monitors transit provider compliance
Technical assistance	FTA
Advantages <ul style="list-style-type: none">▪ State control of activities▪ Current, working model exists (FTA SSO Rule) for rail fixed guideway systems	
Disadvantages <ul style="list-style-type: none">▪ Requires Federal legislation to implement▪ Inconsistent application of requirements across states (observed in rail SSO rule)▪ Generally requires new infrastructure and funding within state entity▪ Enforcement options are generally not punitive	

Implementation Model 3 – Contractual requirements tied to FTA grants

This implementation model would require compliance with bus safety requirements as a contractual condition of receiving or continuing to receive FTA funds. This implementation model would have the characteristics listed in Exhibit 4-3.

The FTA would be required to establish specific transit bus safety requirements for transit providers that receive FTA funds. These requirements would be incorporated into the FTA grant contracts with each transit provider or state agency that receives FTA funds. Modification to the grant contract language may be possible without the need for new legislative action. Enforcement and compliance monitoring would be incorporated into FTA's normal compliance audits of the grant contracts (i.e., triennial reviews).

EXHIBIT 4-3	
IMPLEMENTATION MODEL 3 – CONTRACTUAL REQUIREMENTS TIED TO FTA GRANTS	
Transit provider safety program requirements	FTA establishes safety program requirements.
Oversight function requirements	FTA establishes oversight function requirements.
Enforcement	Compliance required as part of grant/funding conditions
Compliance monitoring	Transit provider self-certifying on annual basis; FTA audit as part of triennial review.
Technical assistance	FTA
Advantages	
<ul style="list-style-type: none">▪ Can probably be implemented within current grant making rules (i.e., no new rulemaking)⁸▪ Consistent set of safety program requirements for transit providers▪ Safety program requirements can be tailored to grantee size and services	
Disadvantages	
<ul style="list-style-type: none">▪ Compliance audits are infrequent (triennial) and may lack depth▪ Lack of formal rulemaking process with wide review and comment before implementation	

⁸ **Note to FTA: We need to determine the validity of this assumption before moving to a final document.**

Implementation Model 4 – Voluntary programs (based on APTA, CTAA approaches)

This model relies heavily on industry organizations such as APTA, CTAA, AASHTO and others to establish common “platforms” or “best practices” programs by which they encourage their members to participate. While participation in the safety programs is not mandatory, participation would potentially contribute to lower operating costs for the transit agency through reduced claims and insurance premiums. This implementation model would have the characteristics listed in Exhibit 4-4.

This approach represents transit bus safety “as is”. As a future model for more comprehensive transit bus safety oversight, additional coordination between industry organizations and FTA (and other agencies) would be necessary to ensure consistency in safety standards for all transit providers. Additional programs or incentives may be necessary to expand participation in the programs. Enforcement and compliance monitoring relies on the industry participants.

EXHIBIT 4-4 IMPLEMENTATION MODEL 4 – VOLUNTARY PROGRAMS (BASED ON APTA, CTAA APPROACHES)	
Transit provider safety program requirements	Industry organization or third party
Oversight function requirements	Industry organization or third party
Enforcement	Voluntary compliance, transit provider buys membership in the program
Compliance monitoring	Industry organization or third party
Technical assistance	Federal entity, industry organization or third party
Advantages <ul style="list-style-type: none">▪ Industry generated and promoted requirements▪ Consistent set of safety program requirements for transit providers	
Disadvantages <ul style="list-style-type: none">▪ Participation in programs may be limited, especially among smaller transit providers▪ FTA funding may be required to encourage greater participation▪ Compliance audits may be infrequent and may have conflict of interest issues▪ FTA has a limited role in setting program requirements and compliance monitoring	

4.4 Comparison of Possible Implementation Models

This section provides a comparison of the safety program implementation models described above. The comparisons are based on relative measures (i.e., high, medium, low) that are applied on an industry-wide basis. The comparisons address the following items.

- FTA/NTSB Goals – Does the implementation model address FTA and NTSB goals related to the transit bus safety program?
- Burden (Transit Providers, State Entities, & Federal Entities) – Does the implementation model impose significant additional burden on the participants?
- Participation by Transit Providers – What is the anticipated extent of participation by transit bus providers?
- Advantages/Disadvantages – The relative weight of the advantages versus the disadvantages of the implementation model.
- Safety Program Consistency – Anticipated consistency of safety programs throughout the transit provider community.
- Oversight Program Consistency – Anticipated consistency of oversight programs throughout the transit provider community.

Exhibit 4-5 illustrates the comparison of the transit bus safety program implementation models described above.

Exhibit 4-5				
Comparison of the Possible Implementation Models				
Comparison Criteria	Implementation Model			
	1	2	3	4
FTA/NTSB Goals	H	M	M	L
Burden on Transit Providers	H	M	M	L
Burden on State Entities	M	H	M	L
Burden on Federal Entities	M	M	M	L
Participation by Transit Providers	H	H	H	L
Advantages/Disadvantages	M	L	H	M
Safety Program Consistency	H	M	H	M
Oversight Program Consistency	H	L	H	M
H – High M – Medium L – Low				

Implementation Model 1, based on a set of national standards, receives high marks for addressing FTA and NTSB safety goals and for providing consistency in safety and oversight programs. This approach does, however, place moderate to high burdens on all the participants. High participation by transit providers would be expected due to implementation via Federal mandate. Disadvantages include the need for Federal legislation and establishing a reliable funding source to support a transit bus safety program modeled on the successful MCSAP approach.

Implementation Model 2, based on current FTA rail safety oversight, addresses most FTA and NTSB concerns. However, as evidenced by the rail safety oversight experience, there will be inconsistencies in both the safety programs and oversight programs from state to state. This approach places a high burden on the states for defining and implementing the programs. High participation by transit providers would be expected due to implementation via Federal mandate. Disadvantages include the need for Federal legislation and, due to the extent of transit bus services, likely requiring new organizational infrastructure within the states to implement.

Implementation Model 3, based on the current FTA grant process, also addresses most FTA and NTSB concerns. Moderate additional burden is anticipated for all participants. High participation by transit providers would be expected due to their dependence on FTA operating and capital funds. Consistency throughout the safety programs and oversight programs could be expected once FTA establishes specific guidance for the programs. An advantage is that this approach may be possible without new Federal legislation.

Implementation Model 4, based on current voluntary programs promulgated by APTA and CTAA, is the least intrusive approach. The stated FTA and NTSB goals remain a challenge because, currently, transit provider participation is not widespread. However, these goals could be achieved through full participation by all parties (including the FTA). This approach imposes the least burden on the participants, except that transit providers must pay to participate. If given the responsibility, the transit industry organizations' capability to conduct safety oversight activities would need to be greatly expanded. Moderate consistency throughout the safety programs and oversight programs could be expected due to the industry-consensus nature of the program standards and guidance.

Based on this relative comparison of implementation models, no one model is clearly superior to the others in meeting all implementation and oversight objectives. Each has overall advantages and disadvantages related to transit bus industry participation, burden on industry and government participants, and consistency throughout the transit bus community. All options will require funding to implement more pro-active transit bus safety programs. To some extent, reductions in accidents and claims will save money and improve the image of public transit, but various amounts of investment will be required at all levels -- Federal, state, transit provider -- depending on the Transit Bus Safety Implementation Model selected. Section 5 of this report reviews these overall advantages and disadvantages to extract the best features of each approach to structure possible FTA policy options for transit bus safety and oversight programs.

5. Policy Option

To be provided.

Safety Program References

FTA Transit Bus Safety Program, Task 2 – Regulations and Oversight (Federal, State, Local, and Industry), Draft Final Report, March 19, 2001.

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Model Vehicle Safety Program, Ohio Department of Transportation, June 30, 2000.

Transit Safety Plus Program, Community Transportation Association of America.

Motor Fleet Safety Manual, 4th Edition, National Safety Council, 1996.